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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/765,421

01/27/2004

Shmuel Shaffer

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73552

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03/17/2008

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EXAMINER

PHAN, MAN U

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/765,421	Applicant(s) SHAFFER ET AL.	
	Examiner Man Phan	Art Unit 2619	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 December 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13, 15 and 20-31 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8, 15, 20-25 and 31 is/are rejected.
- 7) ☒ Claim(s) 9-13, 26-30 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This communication is in response to applicant's 12/14/2007 Amendment in the application of Shaffer et al. for a "Time-sensitive-packet jitter and latency minimization on a shared data link" filed 01/27/2004. This application is a continuation of 09/614,536 filed 07/11/2000 is now U.S. Patent #6,707,821. The proposed amendment and response has been entered and made of record. Claims 1-13, 15 and 20-31 are pending in the application.

Remarks

2. Applicant's amendment to the pending claims have been considered but are moot in view of the new ground(s) of rejection, and will be examined as discussed below. Furthermore, the rejections of record under 35 U.S.C. ' 101 double patenting of the claims are withdrawn in view of the newly discovered reference to Baker (US#6,580,694) and Kim (US#6,215,791). Accordingly, This action is made Non-Final. Rejections based on the newly cited reference follows:

Claim Objections

3. Claim 20 is objected to because of the following informalities:

This claim is an apparatus claim. However it contains a "computer readable medium" on line 1. Appropriate correction is required

Claim Rejections - 35 USC ' 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 4 and 23 recite the limitation "*the speech pause interval*" in lines 2. There is insufficient antecedent basis for this limitation in the claims.

Claims 5 and 24 recite the limitation "*the turnaround interval*" in lines 3. There is insufficient antecedent basis for this limitation in the claims.

Claims 9 and 26 recite the limitation "*the time remaining*" in lines 3. There is insufficient antecedent basis for this limitation in the claims.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. Claims 1-8, 15 and 20-25, 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Baker (US#6,580,694) in view of Kim (US#6,215,791).

In so far, as understood, with respect to claims 20,-25, 31 the references disclose a novel system and method for interleaving time-critical packets with lower-priority packets onto a common data link without interfering with a time critical packets, according to the essential features of the claims. Baker (US#6,580,694) discloses a method and a set of logic for managing time-sensitive packetized data streams at a receiver (101), comprising: receiving a time-sensitive packet of a data stream (e.g. voice)(col. 3, lines 3-6); comparing an energy level of a payload signal of the packet to an energy level of a payload signal of a previous packet (col. 6, lines 21-28). Baker further teaches in Fig. 4 a flow diagram illustrated the techniques of establishing optimal audio latency in streaming communications, in which operation begins in step 410 with the recording of the arrival time of a current packet in the receive process 101. Step 410 is then followed by a decision block 414 in which the marker bit of the current packet is checked. If the marker bit is not set, then an interpacket time delay is calculated by taking the difference between the current packet's arrival time and the arrival time of a previous packet in step 418. The variable `arr_time_prev` is then set equal to the arrival time of the current packet in step 422. Operation then continues with step 426 in which a histogram that contains interpacket delay statistics is updated with a new sample being the interpacket time delay that was calculated in step 418. Operation then continues with step 430 in which the histogram is checked to see if there are enough delay samples. The above-described series of operations 410-430 can be repeated as often as packets are received in order to build up a histogram with enough delay samples. The number of required delay samples in the histogram can be determined by one of

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ordinary skill in the art, based on, for instance, a trial and error procedure, as a function of the quality of the audio playback and the type of transmission link between the transmit and receive processes. Upon reaching the required number of samples in the histogram, operation continues with step 434 in which a new size of the packet queue is determined. Thereafter, the new size can be applied to the packet queue, so that no packets are played back from queue until the queue has been filled to its new capacity. If the marker bit in a received packet has been set, then operations 418-426 are bypassed with operation 438 in which the variable `arr_time_prev` is set equal to the arrival time of the current packet, without updating the histogram with a new sample. In this way, the current elapsed time between arrival of the current packet and the previous packet is not included as part of the interpacket delay statistics 142. That is because, as indicated by the marker bit being sent, the packet was generated following a period of silence, so that the delay in the arrival of the current packet can be assumed to be primarily due to the period of silence, rather than a delay due to the packet's travel through the network. By including the elapsed time between packets as part of delay statistics 142 only if it is determined that the elapsed time is due to the network delay, rather than a transmit delay that may have been caused by a period of silence, the interpacket delay statistics that will be used to adjust the latency will better reflect the true network delay that is being addressed by the latency. An alternative technique would be to compare the energy of the payload in the current packet received by the destination machine with the payload energies of one or more previously received packets. Such a technique may be an alternative that can be automatically performed by the receive process in the destination machine if the marker bits of one or more packets are either not sent or are being used incorrectly by the transmit process (Col. 5, lines 29 plus).

In the same field of endeavor, Kim (US#6,215,791) discloses a queue management system capable of controlling jitter as well as cell priority. Kim teaches the limitation of the prioritizing the timing. Kim also states reasons for implementing a proper queue management system mainly to ensure that a quality of service is maintained (column 1 lines 24 through 32). A sequencer compares the deadline time of a new entry with that of the entries the sequencer has been keeping in the register. The entry with a smaller deadline time has higher priority. In the case that the deadline entry is the same, the eligible time is compared and the entry with a smaller eligible time has higher priority (column 6 lines 15 through 45). The results are subsequently stored in a register (column 6 lines 8 through 14).

The measuring and comparison steps provided by Baker in combination with the prioritizing operation disclosed by Kim would render the claim subject matter obvious to one skilled in the art. The proper motivation is to enhance the quality of service for real time transmission such as voice and end-to-end data flow; which is the objective of the invention disclosed by Kim.

Regarding claims 1-8, 15, they are method claims corresponding to the apparatus claims 20-25, 31 above. Therefore, claims 1-8, 15 are analyzed and rejected as previously discussed with respect to the claims 20-25, 31 above.

Allowable Subject Matter

8. Claims 9-12 and 26-30 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

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9. The following is an examiner's statement of reasons for the indication of allowable subject matter: The closest prior art of record fails to disclose or suggest wherein predicting whether the lower-priority packet can be selected for transmission without causing substantial delay comprises computing the time remaining until the expected arrival of the next time-critical packet and comparing the time remaining with the estimated transmit time for the lower-priority packet; wherein transmission does not cause substantial delay if the estimated transmit time for the lower-priority packet does not exceed the time remaining until the expected arrival of the next time-critical packet by more than an allowable jitter; wherein computing the time remaining until the expected arrival of the next time-critical packet comprises computing a time estimate $t_R = t_{Np} + k \cdot \sigma_{Np} + j_A - t_C$, where t_{Np} is an expected arrival time estimate for the next time-critical packet, σ_{Np} is an arrival time standard deviation for the next time-critical packet, k is a standard deviation multiplier, j_A is an allowable jitter, and t_C is the current time, as expressly recited in the claims.

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The Tominaga et al. (US#5,121,385) is cited to show the Highly efficient multiplexing.

The Hiramatsu (US#6,236,672) is cited to show the Transmitting/receiving apparatus using a plurality of spreading codes.

The Feldman (US#6,393,000) is cited to show the Communication method and apparatus with transmission of a second signal during absence of a first one.

The Hamalainen et al. (US#6,477,176) is cited to show the Simultaneous transmission of speech and data on a mobile communications system

The Doshi et al. (US#6,529,499) is cited to show the Method for providing quality of service for delay sensitive traffic over IP networks

The Girardeau, Jr. (US#6,535,567) is cited to show the Method and apparatus for suppression of jitter in data transmission system.

The Li et al. (US#6,560,230) is cited to show the Packet scheduling methods and apparatus.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to M. Phan whose telephone number is (571) 272-3149. The examiner can normally be reached on Mon - Fri from 6:00 to 3:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jay Patel, can be reached on (571) 272-2988. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (571) 272-2600.

12. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about

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the PAIR system, see <http://pair-direct.uspto.gov>. Should you have any questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at toll free 1-866-217-9197.

Mphan

03/12/2008.

/Man Phan/

Primary Examiner, Art Unit 2619